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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/028,684      | 12/28/2000  | Yong Jin Cho         | 8733,563-00         | 3746             |

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[REDACTED] EXAMINER

DI GRAZIO, JEANNE A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2871     |              |

DATE MAILED: 03 20 2003

Please find below and or attached an Office communication concerning this application or proceeding.

## Office Action Summary

|                     |              |
|---------------------|--------------|
| Application No.     | Applicant(s) |
| 10/028,984          | CHO ET AL.   |
| Examiner            | Art Unit     |
| Jeanne A. Di Grazio | 2871         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) Responsive to communication(s) filed on \_\_\_\_\_.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

4) Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-12 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) _____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other   |

## DETAILED ACTION

### *Priority*

Priority to Korean Patent Application No. 2001-24851 (May 7, 2001) is claimed.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 1 is rejected under 35 U.S.C. 103(a) as being obvious over Kim et al. (US '050 B1).

The applied reference (**Filed: Jul. 7, 2000**) has a common assignee (**LG Phillips, Co., LTD**) with the instant application. Based upon the earlier effective U.S. filing date of the reference (**Filed: Jul. 7, 2000**), it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be

overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(l)(1) and § 706.02(l)(2).

Per claim 1: Kim has: a contact hole for electrically connecting a drain electrode with a pixel electrode where the contact hole is formed over portions of the drain electrode and a pixel region (Col. 4, Lines 15-20 and Figure 5). A plurality of gate lines and data lines that cross each other to define pixel regions and TFTs formed at crossing points of the gate and data lines are common in the art for switching (See, for example, Kim US 2002/0039161, Col. [0012])(describing these elements in a conventional LCD device).

2. Claims 2-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim (US 2002/0039161 A1) Kim et al. (US '050 B1).

Per claims 2 and 11: Kim has (referring to Figure 3): a gate electrode formed on an insulating substrate (103), a gate insulating layer formed on an entire surface of the insulating substrate including the gate electrode (105), a semiconductor layer (106) and an ohmic contact layer (106a) sequentially deposited at a predetermined portion on the gate insulating layer, source (106b) and drain (106c) electrodes formed left to right respectively, and a passivation film (107) formed on the entire surface of the substrate including the source and drain electrodes (See also, "the passivation film is formed ... on the entire surface including the source/drain electrodes." At [0054]). Kim does not appear to specify that a contact hole is formed by etching the passivation layer to expose a predetermined portion of the drain electrode and a predetermined portion of the insulating substrate, where a pixel electrode will later be formed and the pixel electrode formed on the passivation layer and the contact hole; however, Kim

(‘050) does have these elements (See Figure 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (US 2002) in view of Kim (‘050) for an LCD with good display characteristics, high aperture ratio, and high yield (Col. 2, Lines 28-30 of Kim ‘050).

Per claim 3: Kim (US 2002) has conventional LCD that has gate and data lines crossing each other on a substrate and that define a pixel region, TFTs with gate, source, and drain electrodes formed at crossing points of the gate and data lines [0012]. Kim does not appear to have a contact hole formed over the drain electrode and pixel region and a pixel electrode formed in the pixel region for connecting the pixel electrode to the drain electrode through the contact hole; however, Kim (‘050) has these elements (See Figure 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (US 2002) in view of Kim (‘050) for an LCD with good display characteristics, high aperture ratio, and high yield (Col. 2, Lines 28-30 of Kim ‘050).

Per claims 4, 9, 10, and 12: Kim (US 2002) does not appear to have a contact hole formed over an edge part of the drain electrode and the pixel region adjacent to the edge part of the drain electrode; however, Kim (‘050) has a contact hole formed over an edge part of the drain electrode and the pixel region adjacent to the edge part of the drain electrode (Figure 5). Note that in Kim (‘050) the passivation film (and gate insulating film) is selectively removed to form the contact hole (Figure 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (US 2002) in view of Kim (‘050) for reduced process steps and for an

LCD with good color display characteristics, high aperture ratio, and high yield (Col. 2, Lines 28-30 of Kim '050).

Per claim 5: Kim (US 2002) (Figure 3) has a substrate (131) on which a gate electrode (103) is located, a gate insulating film (105) on an entire surface of the substrate including the gate electrode, a semiconductor layer (106) on the gate insulating film above the gate electrode, the source (106b) and drain (106c) electrodes located at opposite sides of the semiconductor layer and a passivation film (107) formed on the entire surface of the substrate including the source and drain electrodes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include these elements for simplification of process steps and improved picture quality [0019].

Per claims 6 and 7: Kim (US 2002) does not appear to have the contact hole formed through passivation film (and gate insulating film) on an edge part of the drain electrode and in the pixel region adjacent to the edge part of the drain electrode; however, Kim ('050) meets these elements as discussed with respect to claim 4 (See Figure 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (US 2002) in view of Kim ('050) for an LCD with good color display characteristics, high aperture ratio, and high yield (Col. 2, Lines 28-30 of Kim '050).

Per claim 8: Kim (US 2002) has the general step of TFT transistors each having a gate, source, and drain electrode on an insulating substrate [0012]. Kim (US 2002) also has a formation of a passivation film on an entire substrate including the TFTs [0012]. Kim (US 2002) does not appear to have the step of forming a contact hole over a predetermined portion of the drain electrode and a pixel region adjacent to the drain electrode and forming a pixel electrode in

the pixel region connected to the drain electrode through the contact hole; however, as previously noted, Kim ('050) has these elements and method of manufacture. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kim (US 2002) in view of Kim ('050) for reduced mask steps and for an LCD with good display characteristics, high aperture ratio, and high yield (Col. 2, Lines 28-30 of Kim '050).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG  
March 15, 2003

